UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/367,797	01/19/2000	ANDREW JOHNSON	A-68362/DJB	4776

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DIGIMARC CORPORATION
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EXAMINER
KLIMACH, PAULA W

ART UNIT	PAPER NUMBER
2135	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 November 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-60* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-14, 17, 26 and 41-52* is/are allowed.

6)☒ Claim(s) *15, 16, 18-25, 27-40 and 53-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response to amendment filed on 11/28/05. Therefore, presently

pending claims are 1-51.

Response to Arguments

Applicant's arguments filed 11/28/05 have been fully. The delay in citation of the newly

discovered prior art is regretted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15-16, 18-25, 27-40, and 53-60 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Cox (5, 915, 027) in view of Tewfik (6,272,634 B1).

In reference to claims 15, 27, 53, and 58, Cox discloses a method for extracting a

watermark from watermarked digital media data, including: segmenting the digital media data

into data blocks (column 5 line 64 to column 6 line 5).

Although Cox discloses a watermark identifier (Fig. 4), Cox does not expressly disclose

applying an orthogonal transform to the modified data block to obtain transform domain data;

and extracting identification or authentication data from at least one coefficient of the transform

domain data.

However in the article by Cox, a method of extracting the watermark is discloses that

applies an orthogonal transform to the modified data block to obtain transform domain data; and

extracts identification or authentication data from at least one coefficient of the transform

domain data (Fig. 2).

At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to user the watermark extraction method as disclosed in the article by Cox in the

system of Cox. One of ordinary skill in the art would have been motivated to do this because the

extraction can extract a reliable copy of the watermark from imagery that has been significantly

degraded (Section 4 paragraph 4 in the article by Cox).

However Cox does not disclose applying a pseudo-random reversible function to a block

of the digital media data to obtain a modified data block.

Tewfik discloses applying a pseudo-random reversible function to a block of the digital

media data to obtain a modified data block (column 7 line 61 to column 8 line 6) in a

watermarking process.

At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to perform a cryptographic hash of the image as disclosed by Tewfik in the system

of Cox. One of ordinary skill in the art would have been motivated to do this because it is

computationally infeasible to find another input bit string of any length that will be hashed to the

same output and therefore the output would represent the image and be incorporated into the

watermark (column 7 lines 5-16).

In reference to claims 16, wherein the pseudo-random function applied to the data block is a keyed function controlled by a cryptographic key.

Cox does not disclose applying a pseudo-random reversible function to a block of the digital media data to obtain a modified data block.

Tewfik discloses a key generator and therefore can apply different keys to decrypt different memory data (Fig. 4).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to control the cryptographic function using a cryptographic key as in Tewfik in the system of Cox. One of ordinary skill in the art would have been motivated to do this because only the keys need to be distributed securely.

In reference to claims 18 and 54-55, wherein application of the pseudo-random function and application of the orthogonal transform as carried out in the same operation.

Cox does not disclose a system wherein application of the pseudo-random function and application of the orthogonal transform as carried out in the same operation.

Tefik does not disclose a system wherein application of the pseudo-random function and application of the orthogonal transform as carried out in the same operation (column 8 lines 12-25).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to perform the encryption process and the orthogonal transform in the same operation. One of ordinary skill in the art would have been motivated to do this because the operation is an extraction of the identification from the watermarked data and the encrypted data is input into the extraction process of Cox.

In reference to claims 19, 32, 56-57, and 59, Cox discloses a system wherein the act of extracting includes selecting at least one transform domain data coefficient from which to extract identification or authentication data according to a keyed pseudo-random operation (Fig 2).

In reference to claims 20, 30, 35-36, and 39-40 Cox discloses a system wherein the digital media data comprises video data (column 4 lines 20-25).

In reference to claims 21 and 31, Cox discloses a system wherein the digital media data comprises audio data (column 2 lines 30-36).

In reference to claims 22, 29, and 60, Cox discloses a system wherein the identification or authentication data is extracted from the digital media data in real time (column 2 lines 44-50).

In reference to claim 23, wherein the orthogonal the transform is a Walsh Hadamard transform.

Although Cox discloses a DCT transform, Cox does not disclose the use of the Walsh Hadamard transform.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the Walsh Hadamard transform instead of the DCT transform as disclosed in Cox. One of ordinary skill in the art would have been motivated to do this because Walsh Hadamard is often used for watermarking systems either system would be used to insert the watermark and spread it along the spectrum.

In reference to claim 24, wherein the orthogonal transform is selected from a discrete cosine transform, a discrete sine transform and a fast Fourier transform.

However in the article by Cox, a method of extracting the watermark is discloses that applies an orthogonal transform to the modified data block to obtain transform domain data; and extracts identification or authentication data from at least one coefficient of the transform domain data (Fig. 2). The system of Cox uses the discrete sine transform.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to user the watermark extraction method as disclosed in the article by Cox in the system of Cox. One of ordinary skill in the art would have been motivated to do this because the extraction can extract a reliable copy of the watermark from imagery that has been significantly degraded (Section 4 paragraph 4 in the article by Cox).

In reference to claim 25 and 28, Cox does not disclose the pseudo-random reversible function is a permutation of the data block based on a keyed pseudo-random number generator.

Tewfik discloses applying a pseudo-random reversible function to a block of the digital media data to obtain a modified data block (column 7 line 61 to column 8 line 6) in a watermarking process.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to perform a cryptographic hash of the image as disclosed by Tewfik in the system of Cox. One of ordinary skill in the art would have been motivated to do this because it is computationally infeasible to find another input bit string of any length that will be hashed to the same output and therefore the output would represent the image and be incorporated into the watermark (column 7 lines 5-16).

In reference to claims 33 and 37, system comprising a media data buffer for temporarily

storing media data received from a data source; a real time processor coupled to receive media

data from the media data buffer (column 2 lines 45-53).

Although Cox discloses a watermark identifier (Fig. 4), Cox does not expressly disclose

applying an orthogonal transform to the modified data block to obtain transform domain data;

and extracting identification or authentication data from at least one coefficient of the transform

domain data.

However in the article by Cox, a method of extracting the watermark is discloses that

applies an orthogonal transform to the modified data block to obtain transform domain data; and

extracts identification or authentication data from at least one coefficient of the transform

domain data (Fig. 2). Cox discloses further a comparison processor for comparing extracted

identification or authentication data with known identification or authentication data (Fig. 2).

At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to user the watermark extraction method as disclosed in the article by Cox in the

system of Cox. One of ordinary skill in the art would have been motivated to do this because the

extraction can extract a reliable copy of the watermark from imagery that has been significantly

degraded (Section 4 paragraph 4 in the article by Cox).

In reference to claims 34 and 38 includes an analogue-to-digital converter for convening

media data into a digital form before processing by the real time processor.

At the time the invention was made, it would have been obvious to a person of ordinary

skill in the art to convert the analogue data into the digital data. One of ordinary skill in the art

would have been motivated to do this because the input data in the system of Cox is digital data

(column 1 lines 21-25).

Allowable Subject Matter

Claims 1-14, 41-52, are allowed.

Claims 17, 26, are objected to as being dependent on a rejected base claim, but would be

allowable if rewritten in independent form including all of the limitations of the base claim and

nay intervening claims

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Paula W. Klimach whose telephone number is (571) 272-3854.

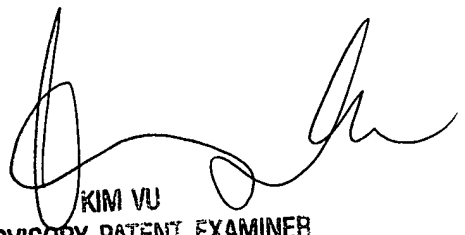The examiner can normally be reached on Mon to Thr 9:30 a.m to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim Vu can be reached on (571) 272-3859. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PWK
Tuesday, February 21, 2006

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